

## PCT COOPERATION TREATY

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## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C.20231  
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 19 July 2000 (19.07.00)	
<b>International application No.</b> PCT/GB99/03846	<b>Applicant's or agent's file reference</b> SMK/BP5817259
<b>International filing date (day/month/year)</b> 18 November 1999 (18.11.99)	<b>Priority date (day/month/year)</b> 19 November 1998 (19.11.98)
<b>Applicant</b> JARRETT, Paul et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

06 June 2000 (06.06.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer Pascal Piriou</p> <p>Telephone No.: (41-22) 338.83.38</p>
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# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>SMK/BP5817259</b>	<b>FOR FURTHER ACTION</b> <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. <b>PCT/GB 99/ 03846</b>	International filing date (day/month/year) <b>18/11/1999</b>	(Earliest) Priority Date (day/month/year) <b>19/11/1998</b>
Applicant  <b>HORTICULTURE RESEARCH INTERNATIONAL et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

### 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☒ furnished subsequently to this Authority in written form.

☒ furnished subsequently to this Authority in computer readable form.

☒ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☒ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SMK/BP5817259	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB99/03846	International filing date (day/month/year) 18/11/1999	Priority date (day/month/year) 19/11/1998
International Patent Classification (IPC) or national classification and IPC A01N63/00		
Applicant HORTICULTURE RESEARCH INTERNATIONAL et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  06/06/2000	Date of completion of this report  27.02.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Faizi, R  Telephone No. +49 89 2399 8603  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/03846

## I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

### Description, pages:

1-30,33	as originally filed			
31,32	as received on	03/11/2000	with letter of	01/11/2000

### Claims, No.:

1-10,28-52	as originally filed			
11-27	as received on	03/11/2000	with letter of	01/11/2000

### Drawings, sheets:

1/2,2/2	as originally filed
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### Sequence listing part of the description, pages:

1-6, filed with the letter of 21.03.2000

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☒ furnished subsequently to this Authority in computer readable form.
- ☒ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB99/03846

listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☒ the description, pages: 31, 32  
☒ the claims, Nos.: 11-27  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	1-52
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-52
Industrial applicability (IA)	Yes:	Claims	1-52
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**V: Reasoned Statements:**

The present Demand, as based on the strains NCIMB 40985 and NCIMB 40986 of *Xenorhabdus bovienii*, as well as the nucleotide sequences derived therefrom are found to be formally novel.

The objection as to lack of inventive step of the claimed subject-matter was not satisfied in any way by the applicant in his letter of reply (1.11.2000), and is still valid. Thus, the problem of controlling insects with a formulation as claimed was already addressed by D1: WO 98/08388 which describes different strains of *X. nematophilus*. Since *X. bovienii* was formerly known as subspecies of *X. nematophilus*, it follows that both will share certain characteristics as claimed at present (see Table 1, D1). They particularly show oral insecticidal activity, partial heat tolerance at 55°C and synergistic action with *B. thuringiensis*. Hence, since all the features of claims 3-7 and 9 to 52 correspond to those disclosed by D1 for the strains tested therein, these features are found to lack an inventive step.

Furthermore, since the problem of controlling insects with strains of *Xenorhabdus* combined with *B. thuringiensis* was already solved by D2: WO-A-98/08993 (published 12.11.98). D2 isolates toxins whose polypeptides having molecular weights higher than 270kD, which corresponds to the "greater than 280kD" disclosed at page 5, line 18 of the Demand. This toxin is effective in controlling Coleoptera, Lepidoptera, Diptera and Acarina.

D1 describes isolating the toxins, the genes encoding them as well as the resultant nucleotides and proteins, and state that they provide the same advantages as in the present application, namely 100% control of the insects. Further toxins and polypeptides are known from D2 for the same purpose.

The skilled person would thus regard it as a normal option to include all these features known from both D1 and D2 in an insecticidal agent as claimed in order to solve the problem posed. Therefore, having already been employed for the same purpose in D1 and D2, the claimed features are obvious to the person skilled in the art, especially as the same result is to be achieved. To apply these features with corresponding effect does not involve an inventive step (Article 33(3) PCT).

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/GB99/03846

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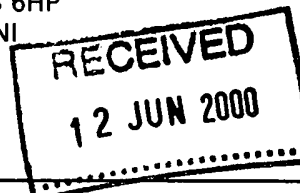
## NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

KREMER, Simon, M.  
Mewburn Ellis  
York House  
23 Kingsway  
London WC2B 6HP  
ROYAUME-UNI



Date of mailing (day/month/year) 02 June 2000 (02.06.00)		
Applicant's or agent's file reference SMK/BP5817259		IMPORTANT NOTICE
International application No. PCT/GB99/03846	International filing date (day/month/year) 18 November 1999 (18.11.99)	Priority date (day/month/year) 19 November 1998 (19.11.98)
Applicant HORTICULTURE RESEARCH INTERNATIONAL et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:

AU,CN,JP,KP,KR,MA,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CR,CU,CZ,DE,DK,DM,EA,EE,EP,ES,FI,GB,GD,GE,  
GH,GM,HR,HU,ID,IL,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,OA,  
PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,ZA,ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on  
02 June 2000 (02.06.00) under No. WO 00/30453

### REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

### REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 GENEVE 20, Switzerland	Authorized officer J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38



# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

/GB 99/03846

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
W0 9808388 A	05-03-1998	AU 4024997 A CN 1233938 A EP 0923295 A ZA 9707373 A	19-03-1998 03-11-1999 23-06-1999 15-02-1999
W0 9850427 A	12-11-1998	AU 7175898 A CN 1229413 T EP 0915909 A	27-11-1998 22-09-1999 19-05-1999
W0 9632396 A	17-10-1996	AU 5264796 A CA 2217957 A	30-10-1996 17-10-1996

# INTERNATIONAL SEARCH REPORT

International Application No

/GB 99/03846

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A01N63/00 A01N63/02 C12N15/63 C12N15/82 C07K14/24  
A01N0/00 C12N1/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A01N C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 08388 A (MORGAN JAMES ALUN WYNNE ;JARRETT PAUL (GB); ELLIS DEBORAH JUNE (GB) 5 March 1998 (1998-03-05)	3-52
Y	the whole document	1-52
Y	WO 98 50427 A (DOW AGROSCIENCES LLC ;WISCONSIN ALUMNI RES FOUND (US)) 12 November 1998 (1998-11-12) Page 2, lines 32-40, page 5, line 23, page 6, lines 3-5, page 9, lines 21-30, page 10, lines 3-16, Examples	1-52
A	WO 96 32396 A (WEBSTER JOHN MALCOLM ;LI JIANXIONG (CA); CHEN GENHUI (CA)) 17 October 1996 (1996-10-17) the whole document	1-52



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

18 May 2000

Date of mailing of the international search report

15/06/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Faizi, R

## INTERNATIONAL SEARCH REPORT

International Application No

GB 99/03846

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>M TACHIBANA ET AL: "Larvicidal activity of the symbiotic bacterium <i>Xenorhabdus japonicu</i> from the entomopathogenic nematode <i>Steinernema kushidai</i> against <i>Anomala cuprea</i> (Coleoptera: Scarabaeidae)" JOURNAL OF INVERTEBRATE PATHOLOGY, US, SAN DIEGO, CA, vol. 68, 1 January 1996 (1996-01-01), pages 152-159, XP002092717 ISSN: 0022-2011</p> <p>---</p>	1-52
A	<p>BOEMARE N ET AL: "Taxonomy and General Properties of <i>Xenorhabdus</i>, Bacteria Associated with the Insect Attacking Nematodes <i>Steinernematidae</i> and <i>Heterorhabditidae</i>. (Taxonomie et Proprieties Generales des <i>Xenorhabdus</i>, Bacteries Associes aux Nematodes Entomophages <i>Steinernematidae</i> et <i>Heterorhabditidae</i>)" . COLLOQ.INRA (NO. 58, 113-24, 1991) 2 TAB. 20 REF. CODEN:, XP002138042 the whole document</p> <p>-----</p>	1-52